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# FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$)

## Complete if Known

Application Number	09/875,787
Filing Date	June 6, 2001
First Named Inventor	Ananthanarayanan et al.
Examiner Name	Mark Ruthkosky
Art Unit	1745
Attorney Docket No.	DP-304512

## METHOD OF PAYMENT (check all that apply)

☒ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☒ Deposit Account:

Deposit Account Number: 20-0809

Deposit Account Name: Thompson Hine LLP

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## FEE CALCULATION

1. BASIC FILING FEE			
Large Entity	Small Entity	Fee Description	Fee Paid
Fee Code	Fee Code		
1001 770	2001 385	Utility filing fee	
1002 340	2002 170	Design filing fee	
1003 530	2003 265	Plant filing fee	
1004 770	2004 385	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	
SUBTOTAL (1)			(\$) 0

## 2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims:  -20\*\* =  X  =

Independent Claims:  -3\*\* =  X  =

Multiple Dependent:  =

Large Entity	Small Entity	Fee Description	
Fee Code	Fee Code		
1202 18	2202 9	Claims in excess of 20	
1201 86	2201 43	Independent claims in excess of 3	
1203 290	2203 145	Multiple dependent claim, if not paid	
1204 86	2204 43	** Reissue independent claims over original patent	
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent	
SUBTOTAL (2)			(\$) 0

\*\*or number previously paid, if greater; For Reissues, see above

## FEE CALCULATION (continued)

3. ADDITIONAL FEES					
Large Entity	Small Entity	Fee Code	Fee Code	Fee Description	Fee Paid
		1051 130	2051 65	Surcharge - late filing fee or oath	
		1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet	
		1053 130	1053 130	Non-English specification	
		1812 2,520	1812 2,520	For filing a request for ex parte reexamination	
		1804 920*	1804 920*	Requesting publication of SIR prior to Examiner action	
		1805 1,840*	1805 1,840*	Requesting publication of SIR after Examiner action	
		1251 110	2251 55	Extension for reply within first month	
		1252 420	2252 210	Extension for reply within second month	
		1253 950	2253 475	Extension for reply within third month	
		1254 1,480	2254 740	Extension for reply within fourth month	
		1255 2,010	2255 1,005	Extension for reply within fifth month	
		1401 330	2401 165	Notice of Appeal	
		1402 330	2402 165	Filing a brief in support of an appeal	330.00
		1403 290	2403 145	Request for oral hearing	
		1451 1,510	1451 1,510	Petition to institute a public use proceeding	
		1452 110	2452 55	Petition to revive - unavoidable	
		1453 1,330	2453 665	Petition to revive - unintentional	
		1501 1,330	2501 665	Utility issue fee (or reissue)	
		1502 480	2502 240	Design issue fee	
		1503 640	2503 320	Plant issue fee	
		1460 130	1460 130	Petitions to the Commissioner	
		1807 50	1807 50	Processing fee under 37 CFR 1.17(q)	
		1806 180	1806 180	Submission of Information Disclosure Stmt	
		8021 40	8021 40	Recording each patent assignment per property (times number of properties)	
		1809 770	2809 385	Filing a submission after final rejection (37 CFR 1.129(a))	
		1810 770	2810 385	For each additional invention to be examined (37 CFR 1.129(b))	
		1801 770	2801 385	Request for Continued Examination (RCE)	
		1802 900	1802 900	Request for expedited examination of a design application	
Other fee (specify) _____					
*Reduced by Basic Filing Fee Paid					
SUBTOTAL (3)					(\$) 330.00

SUBMITTED BY		(Complete if applicable)	
Name (Print/Type)	Douglas E. Erickson	Registration No. (Attorney/Agent)	29,530
Signature	<i>Douglas E. Erickson</i>	Telephone	937.443.6814
		Date	5/26/04

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<b>TRANSMITTAL FORM</b>  (to be used for all correspondence after initial filing)	Application Number	09/875,787	
	Filing Date	June 6, 2001	
	First Named Inventor	Ananthanarayanan et al.	
	Art Unit	1745	
	Examiner Name	Mark Ruthkosky	
Total Number of Pages in This Submission	38	Attorney Docket Number	DP-304512

ENCLOSURES (Check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form	<input type="checkbox"/> Drawing(s)	<input type="checkbox"/> After Allowance communication to Technology Center (TC)
<input checked="" type="checkbox"/> Fee Attached	<input type="checkbox"/> Licensing-related Papers	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
<input type="checkbox"/> Amendment/Reply	<input type="checkbox"/> Petition	<input checked="" type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
<input type="checkbox"/> After Final	<input type="checkbox"/> Petition to Convert to a Provisional Application	<input type="checkbox"/> Proprietary Information
<input type="checkbox"/> Affidavits/declaration(s)	<input type="checkbox"/> Power of Attorney, Revocation	<input type="checkbox"/> Status Letter
<input type="checkbox"/> Extension of Time Request	<input type="checkbox"/> Change of Correspondence Address	<input checked="" type="checkbox"/> Other Enclosure(s) (please identify below):
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<b>SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT</b>		
Firm or Individual name	Thompson Hine LLP 2000 Courthouse Plaza N.E., 10 West Second Street Dayton, Ohio 45402-1758	
Signature	<i>Douglas E. Erickson</i>	
Date	5/26/04	

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Signature	<i>Douglas E. Erickson</i>	Date 5/26/04

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Douglas E. Erickson  
Douglas E. Erickson

29,530  
Reg. No.

**PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application of

Applicant : Ananthanarayanan et al.  
Serial No. : 09/875,787  
Filed : June 6, 2001  
Title : BATTERY TERMINAL AND METHOD FOR ITS INSTALLATION  
ON A BATTERY CASE  
Docket : DP-304512  
Examiner : Mark Ruthkosky  
Art Unit : 1745

Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**APPEAL BRIEF**

This is an appeal from the final rejection dated January 9, 2004. A Notice of Appeal was filed April 2, 2004.

**(1) Real Party In Interest**

Delphi Technologies, Inc., a corporation, is the Assignee of the entire right, title and interest in the patent application identified above by virtue of an Assignment from the inventors of Patent Application Serial No. 09/875,787 and all divisions and continuations thereof to Delphi

Technologies, Inc. which was recorded in the United States Patent and Trademark Office at Reel 012292, Frame 0469. Accordingly, Delphi Technologies, Inc. is the real party in interest.

**(2) Related Appeals and Interferences**

Appellants, appellants' legal representative or the assignee are not aware of any other appeals or interferences that would be directly affected by/or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

Claims 1-17 are pending in the application and stand rejected. A copy of the claims pending on appeal appears in the attached appendix.

**(4) Status of Amendments**

An amendment under 37 C.F.R. §1.116 was filed on January 30, amending claims 1 and 8. According to the Advisory Action mailed February 23 2004, the proposed amendments will not be entered upon filing of this Appeal Brief.

**(5) Summary of the Invention**

The claims on appeal are directed to a method of installing a battery terminal 20 on a battery case 10 and to a battery terminal 20 for a battery case 10, the case 10 having a wall 12 defining an inner surface 14 of the case and an outer surface 16 of the case 10 and an aperture 18 extending between the inner surface 14 of the case 10 and the outer surface 16 of the case 10,

A first expression (see claim 17) of the battery terminal 20 includes a barrel portion 22 defining an outer circumferential surface 42. The barrel portion 22 extends through the aperture 18. One end of said barrel portion 22 terminates in an outwardly projecting section 24 projecting from the outer surface 16 of the case 10 when the barrel portion 22 is installed in the aperture 18 and a circumferentially extending, radially outwardly projecting shoulder 26 on the other end of said barrel portion 22. The shoulder 26 engages the inner surface 14 of the case 10 when the barrel portion 22 is installed in the aperture 18. The battery terminal 20 also includes an annular retaining ring 36 installed on the outwardly projecting section 24 of the barrel portion 22 after

the barrel portion 22 is installed in the aperture 18 and has an inner circumferential surface 40 fused to the outer circumferential surface 42 of the barrel portion 22. The retaining ring 36 cooperates with the barrel portion 22 to define a radially projecting surface therebetween engaging the outer surface 16 of the case 10. In one example, having the inner circumferential surface 40 of the barrel portion 22 be fused to the outer circumferential surface 42 of the barrel portion 22 eliminates any crevices between the inner circumferential surface 40 and the outer circumferential surface 42 preventing entry of battery acids.

A second expression (see claim 1) of the battery terminal 20 is identical to the previously-described first expression except for the inner circumferential surface 40 of the annular retaining ring 36 being secured (instead of fused) to the outer circumferential surface 42 of the barrel portion 22 and except for the added limitation of the retaining ring 36 longitudinally engaging the terminal 20. In one example, having the retaining ring 36 longitudinally engage the terminal 20 prevents the wall 12 of the battery case 10 from being squeezed, and possible damaged, between the retaining ring 36 and the terminal 20 during the process for attaching the terminal 20 to the battery case 10.

The method (see claim 8) includes providing a battery case 10 having an inner surface 14 and an outer surface 16 with an aperture 18 extending between the inner surface 14 and the outer surface 16. The method also includes inserting a terminal 20 into the aperture 18 from the inner surface 14 such that a projecting portion 24 of the terminal 20 extends from the outer surface 16 of the battery case 10 and a shoulder 26 on the terminal 20 engages the inner surface 14 of the battery case 10. The method additionally includes installing a retaining ring 36 on the projecting portion 24 of the terminal 20 which longitudinally engages the terminal 20. In one example, having the retaining ring 36 longitudinally engage the terminal 20 prevents the wall 12 of the battery case 10 from being squeezed, and possible damaged, between the retaining ring 36 and the terminal 20 during the process for attaching the terminal 20 to the battery case 10.

#### **(6) Issues**

I. Whether claims 1-10, 13, 14 and 17 are anticipated under 35 U.S.C. §102 by Hollis et al. (U.S. Patent No. 3,849,203).

II. Whether claims 11, 12, 15 and 16 are unpatentable under 35 U.S.C. §103 over Hollis et al. (U.S. Patent No. 3,849,203).

**(7) Grouping of Claims**

For the purposes of Issue I presented above, claims 1-3 and 6 are considered to stand or fail together, claims 8-10, 13 and 14 are considered to stand or fail together, claims 4, 5 and 7 are considered to stand or fail together, and claim 17 is considered to stand or fail alone, solely for the purposes of this appeal.

For the purposes of Issue II presented above, claims 11, 15 and 16 are considered to stand or fail together, and claim 12 is considered to stand or fail alone, solely for the purpose of this appeal.

**(8) Argument**

**I. Claims 1-10, 13, 14 and 17 which are directed to a battery terminal or to a method of installing a battery terminal on a battery case are not anticipated under 35 U.S.C. 102 by Hollis et al. (U.S. Patent No. 3,849,203).**

In the final Office action, the examiner rejected claims 1-10, 13, 14 and 17 under 35 U.S.C. §102 as unpatentable over Hollis. The examiner alleges that the retaining ring (locking member 29) of Hollis is secured to the terminal barrel portion (bushing 21), that the retaining ring 29 of Hollis longitudinally engages the terminal (the terminal includes base 20 and bushing 21) as shown in figure 2, and that the retaining ring 29 and bushing 21 are welded/fused together.

Appellants respectfully submit that the examiner's rejection is in error and that the subject matter of claims 1-10, 13, 14 and 17 should not be considered anticipated by Hollis.

Concerning claims 1-3 and 6, the anticipation rejection must fail for two reasons. First, claims 1-3 and 6 require that the inner circumferential surface 40 of the retaining ring 36 be secured to the outer circumferential surface 42 of the terminal barrel portion 22 whereas the

inner circumferential surface of the retaining ring 29 of Hollis is not secured to the outer circumferential surface of the terminal barrel portion 21. Instead, the retaining ring 29 of Hollis is trapped, by a swaging operation, between four walls in figure 2 but is not secured to any wall. Second, claims 1-3 and 6 require a retaining ring 36 installed and longitudinally engaging the terminal 20 (which inherently means that a longitudinally-inward-facing surface of the retaining ring 36 longitudinally engage a longitudinally-outward-facing surface of the terminal 20) whereas the installed retaining ring 29 of Hollis does not longitudinally engage the terminal (base 20 and/or bushing 21) because the retaining ring 29 of Hollis has no longitudinally-inward-facing surface longitudinally engaging a longitudinally-outward-facing surface of the terminal (base 20 and/or bushing 21).

It is noted in one example that appellants' claimed design of claims 1-3 and 6 prevents the wall 12 of the battery case 10 from being squeezed, and possibly damaged, between the retaining ring 36 and the terminal 20 during the process for attaching the terminal 20 to the battery case 10. Compare appellants' claimed design with the design of Hollis where the swaging tool of figure 1 of Hollis grinds the retaining ring (locking member 29) against the side wall 10 of the battery case as is evidenced from figure 2 of Hollis. The design of Hollis is subject to stress cracking during the assembly process while in one example the claimed design of appellants' claims 1-3 and 6 is not.

Concerning claims 8-10, 13 and 14, the anticipation rejection must fail because claims 8-10, 13 and 14 require the step of installing a retaining ring 36 on the terminal 20 which longitudinally engages the terminal 20 whereas, as previously discussed, the installed retaining ring 29 of Hollis does not longitudinally engage the terminal.

Concerning claims 4, 5 and 7, the anticipation rejection must fail for two reasons. First, claims 4, 5 and 7 require a retaining ring 36 installed and longitudinally engaging the terminal 20 whereas, as previously discussed, the installed retaining ring 29 of Hollis does not longitudinally engage the terminal. Second, claims 4 and 7 require the retaining ring 36 and the terminal barrel portion 22 to be welded together, and claim 5 requires they be fused together, whereas the retaining ring 29 and the terminal bushing 21 of Hollis are not welded or

fused together. Instead, the retaining ring 29 and terminal bushing 21 of Hollis are mechanically swaged together.

The Examiner has provided a dictionary definition of “weld” and “fuse” in alleging that Hollis teaches welding and fusing. However, Hollis teaches mechanical swaging. Hollis teaches using the swaging tool of figure 1 to deform and mold and elongate and extend the end 24 of bushing 21 over a portion of retaining ring 29 as shown at 28 (see column 2, lines 35-42). This deforming-molding-elongating-extending deformation mechanically traps the retaining ring longitudinally between a newly created lip of the deformed retaining ring and the side wall 10 as shown in figure 2 of Hollis. This deforming-molding-elongating-extending deformation of Hollis is not a welding or fusing together. Hollis states that “[t]he elements of the terminal are mechanically locked in assembled position by a swaging action” (see column 2, lines 11-12). Hollis does acknowledge that the swaging action includes compression and generates heat from the rotating swaging tool (see column 2, lines 35-40), but, as previously mentioned, Hollis teaches that the swaging action results in elements being mechanically locked in assembled position (see column 2, lines 11-12). Creating a mechanical lock by a swaging action is not welding or fusing. It is pointed out that Hollis knows what fusing together is in his discussion about other elements of his invention which are fused together (see column 2, line 67 to column 3, line 2). It is noted that, compared to welding or fusing, mechanical swaging has a lower torque strength, is not as durable during assembly, and is subject to slow crevice corrosion by battery acids because there are small crevices in mechanical swaged bonds through which acid can seep through.

Concerning claim 17, the anticipation rejection must fail because claim 17 requires the retaining ring 36 and the terminal barrel portion 22 to be fused together whereas, as previously discussed, the retaining ring 29 and the terminal bushing 21 of Hollis are not fused together but are mechanically swaged together.

In view of the foregoing, the appellants respectfully request that the rejection of claims 1-10, 13, 14 and 17 be withdrawn.



**II. Claims 11, 12, 15 and 16 which are directed to a method of installing a battery terminal on a battery case are unobvious under 35 U.S.C. 103 over Hollis et al. (U.S. Patent No. 3,849,203).**

The examiner rejected claims 11, 12, 15 and 16 under 35 U.S.C. §103 as unpatentable over Hollis.

Appellants respectfully submit that the examiner's rejection is in error and that the subject matter of claims 11, 12, 15 and 16 should be considered unobvious.

Concerning claims 11, 15 and 16, the anticipation rejection must fail for two reasons. First, claims 11, 15 and 16 require the step of installing a retaining ring 36 on the terminal 20 which longitudinally engages the terminal 20 whereas, as previously discussed, the installed retaining ring 29 of Hollis does not longitudinally engage the terminal. Second, claims 11, 15 and 16 require electric-current heating whereas there is no motivation for the examiner's use of electric-current heating in Hollis because the rotating swaging tool of Hollis generates heat, there is no reason to add more heat in Hollis, and there is no reason to take away the swaging tool in Hollis as Hollis would then be left with no method for producing a battery terminal.

Concerning claim 12, the anticipation rejection must fail for three reasons. First, claim 12 requires the step of installing a retaining ring 36 on the terminal 20 which longitudinally engages the terminal 20 whereas, as previously discussed, the installed retaining ring 29 of Hollis does not longitudinally engage the terminal. Second, claim 12 requires that the retaining ring 36 and the terminal projecting portion 24 fuse whereas, as previously discussed, the retaining ring 29 and the terminal bushing 21 of Hollis are mechanically swaged together but are not fused together. Third, claim 12 requires electric-current heating whereas, as previously discussed, there is no motivation for the examiner's use of electric-current heating in Hollis.

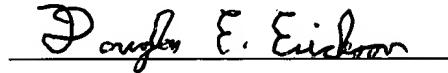
For the foregoing reasons, the examiner has failed to establish a *prima facie* case of obviousness with respect to claims 11, 12, 15 and 16. In view of the foregoing, the appellants

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S/N 09/875,787  
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respectfully request that the rejection of claims 11, 12, 15 and 16 under 35 U.S.C. §103 be withdrawn.

Respectfully submitted,

THOMPSON HINE LLP  
2000 Courthouse Plaza NE  
10 West Second Street  
Dayton, Ohio 45402-1758  
(937) 443-6814

A handwritten signature in cursive script, reading "Douglas E. Erickson", is written over a horizontal line.

Douglas E. Erickson  
Reg. No. 29,530

## **APPENDIX**

1. Battery terminal for a battery case, said case having a wall defining an inner surface of said case and an outer surface of said case and an aperture extending between said inner surface of said case and said outer surface of said case, said terminal including a barrel portion defining an outer circumferential surface, said barrel portion extending through said aperture, one end of said barrel portion terminating in an outwardly projecting section projecting from said outer surface of the case when the barrel portion is installed in said aperture and a circumferentially extending, radially outwardly projecting shoulder on the other end of said barrel portion, said shoulder engaging said inner surface of said case when the barrel portion is installed in said aperture, and an annular retaining ring installed on the outwardly projecting section of the barrel portion after the barrel portion is installed in said aperture and having an inner circumferential surface secured to the outer circumferential surface of said barrel portion, said retaining ring cooperating with said barrel portion to define a radially projecting surface therebetween engaging said outer surface of the case, and said retaining ring longitudinally engaging said terminal.

2. Battery terminal for a battery case as claimed in claim 1, wherein a circumferentially extending seal carried on said shoulder and circumscribing said barrel portion sealingly engages said shoulder and said inner surface of said case to resist leakage from said case through said aperture.

3. Battery terminal for a battery as claimed in claim 1, wherein said outer circumferential surface of the barrel portion and the inner circumferential surface of said retaining ring are dimensioned to permit the retaining ring to be received on said barrel portion with an interference fit therebetween.

4. Battery terminal for a battery as claimed in claim 1, wherein said retaining ring is welded to said barrel portion.

5. Battery terminal for a battery as claimed in claim 1, wherein said outer circumferential surface of the barrel portion and the inner circumferential surface of said retaining ring are dimensioned to permit the retaining ring to be received on said barrel portion with an interference fit therebetween, the interface between said retaining ring and said barrel portion being fused together.

6. Battery terminal for a battery as claimed in claim 1, wherein said outer circumferential surface of the barrel portion and the inner circumferential surface of said retaining ring are dimensioned to permit the retaining ring to be received on said barrel portion with an interference fit therebetween, the interface between said retaining ring and said barrel portion being welded together with the retaining ring engaging the outer surface of said case.

7. Battery terminal for a battery as claimed in claim 1, wherein said retaining ring is welded to said barrel portion together with the retaining ring engaging the outer surface of said case.

8. Method of installing a battery terminal on a battery case comprising the steps of providing a battery case having an inner surface and an outer surface with an aperture extending between the inner surface and the outer surface, inserting a terminal into said aperture from said inner surface such that a projecting portion of the terminal extends from said outer surface of the battery case and a shoulder on said terminal engages said inner surface of the battery case, and installing a retaining ring on said projecting portion of said terminal which longitudinally engages said terminal.

9. Method as claimed in claim 8, wherein an interference fit exists between the retaining ring and said projecting portion, said method including the step of forcing said retaining ring onto said projecting portion into an intermediate position offset from a final seated position engaging said outer surface of said case.

10. Method as claimed in claim 9, including the step of heating the interface between said retaining ring and said projecting portion, and pressing said retaining ring into the final seated position.

11. Method as claimed in claim 10, wherein said interface is heated by passing an electrical current through said retaining ring and said projecting portion while pressing said retaining ring into said final seated position.

12. Method as claimed in claim 11, wherein said retaining ring and said projecting portion fuse as they are heated by said electric current.

13. Method as claimed in claim 8, wherein the interface between the annular ring and said projecting portion is softened to permit fusing of the projecting portion and the annular ring.

14. Method as claimed in claim 13, wherein said interface is softened by heating said components at said interface.

15. Method as claimed in claim 13, wherein an electrical current is passed through said annular ring and said projecting portion to soften said components at said interface.

16. Method as claimed in claim 15, wherein said retaining ring is pressed into a final seated position engaging said outer surface of said case as said current is passed through said retaining ring and said projecting portion.

17. Battery terminal for a battery case, said case having a wall defining an inner surface of said case and an outer surface of said case and an aperture extending between said inner surface of said case and said outer surface of said case, said terminal including a barrel portion defining an outer circumferential surface, said barrel portion extending through said aperture, one end of said barrel portion terminating in an outwardly projecting section projecting from said outer surface

of the case when the barrel portion is installed in said aperture and a circumferentially extending, radially outwardly projecting shoulder on the other end of said barrel portion, said shoulder engaging said inner surface of said case when the barrel portion is installed in said aperture, and an annular retaining ring installed on the outwardly projecting section of the barrel portion after the barrel portion is installed in said aperture and having an inner circumferential surface fused to the outer circumferential surface of said barrel portion, said retaining ring cooperating with said barrel portion to define a radially projecting surface therebetween engaging said outer surface of the case.